LIMITED CIRCULATION

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The effect of aspect on T-sums, Trawsgoed 1986

by J R Starr

Agricultural Memorandum No 1077

Summary

T-sums were monitored at grass level on the Talgarth hill site (300m) on slopes of some 20° with Northerly, Southerly and Westerly aspects. The south-facing slope achieved T-200 on 22 March, a month before the north-facing slope.

Introduction

Ag Mem 1052 described 1985 studies of T-sums on slopes of different aspects at Trawsgoed. The 1986 studies followed the same methodology, temperature integrators, driven by 12v car batteries, being used to integrate temperatures above 0°C at grass-mat level.

Results

The progress of T-sums on the various slopes at 300m is illustrated in Fig 1; note the effect of the very cold spell in February.

T-sum 200 was achieved on 22 March on the south-facing slope and a month later on 19 April on the north-facing slope.

T-sum 200 based on the Met Office T-sum service was reached on 25 March (ie value on 25 March for square 133 was 304, with a height correction of 34 per 100m).

In 1985 the date of reaching the Met Office T-sum '200' (22 March) was close to that for the western slope (25 March).

In 1986 both Met Office T-sum and measured value on Western slope reached T-200 on about 24/25 March.

(The graphical display, Fig 1, was shown at the National Hill Farming Event, Bala, June 1986).

In the studies of 1985 the north-facing slope achieved T-200 3 weeks later than the south-facing slope and Roe (1985) suggested that moderate slopes with a Southerly aspect were equivalent, in T-sum terms, to a level site some 100m lower, while northerly slopes had a T-sum equivalent to a level site some 100m higher. This year the studies again suggest that, in terms of T-sums, north and south facing slopes are equivalent to level sites with a 200m height differential. The 3-day differential between T-200 on south slopes and the date calculated by the Met Office system for a level site implies the south slope to be equivalent to a level slope some 30m lower. No doubt, though, antecedent conditions have a rôle to play here; certainly the progress of T-sums in 1986 to the end of February was very different from 1985.

This study is part of a year-long monitoring of T-sums on various aspects. It is intended to relate these data to theoretical studies being carried out at Bracknell.

References

C P Roe (1985) Allowing for the effect of aspect of sloping ground on published ADAS T-sum figures
Agricultural Memorandum 1052

Acknowledgements

The T-sum data were monitored by Mr J Tamlyn of this department.

Any comments or suggestions on this paper should be sent to the author.

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October 1986

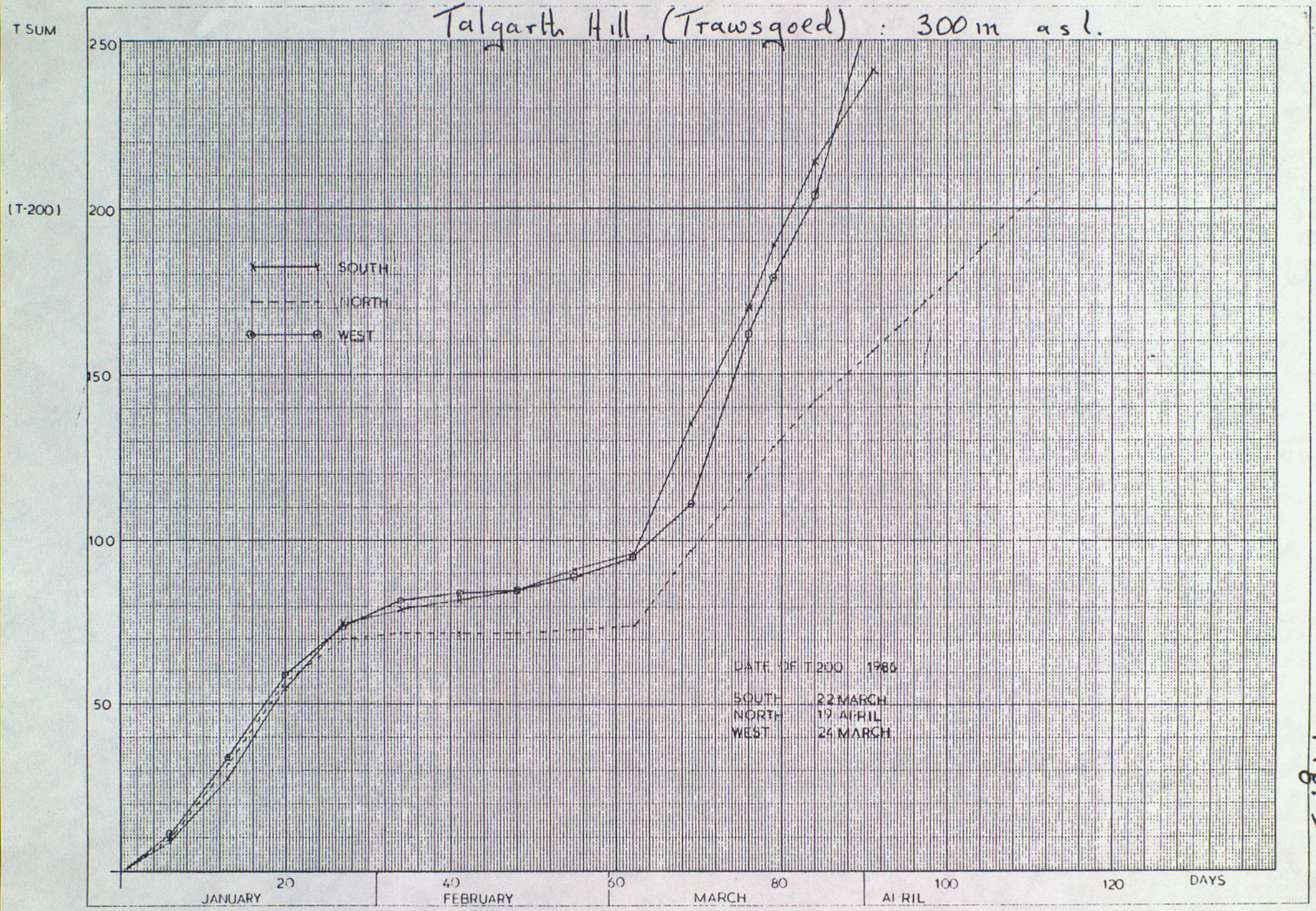
Talgarth Hill, (Trawsgoed) : 300 m a s l.
T SUM
(T-200)
250
200
150
100
50
SOUTH
NORTH
WEST
DATE OF T200 1986
SOUTH 22 MARCH
NORTH 19 APRIL
WEST 24 MARCH
20
40
60
80
100
120
DAYS
JANUARY
FEBRUARY
MARCH
APRIL

Fig. 1